

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for manufacturing a magnetic recording medium, comprising the steps of:

laminating a non-magnetic under-layer on a non-magnetic substrate by sputtering in an atmosphere having a partial pressure of H₂O of 2 x 10⁻¹⁰ Torr or below;

laminating a non-magnetic intermediate layer on said non-magnetic under-layer by sputtering in an atmosphere having a partial pressure of H₂O of 2 x 10⁻¹⁰ Torr or below;

laminating a magnetic layer on said intermediate layer by sputtering in an atmosphere having a partial pressure of H₂O of 2 x 10⁻¹⁰ Torr or below;

the step of lamination a laminating said magnetic layer including laminating to form at least ferromagnetic grains and non-magnetic grain boundaries surrounding said grains;

laminating a protective layer on said magnetic layer, and

laminating a liquid lubricant layer on said protective layer.

2. (Currently Amended) A The method, according to claim 1, wherein:

said non-magnetic intermediate layer is made of at least a metal selected from the group consisting of Ti, Cr, Zr, Hf, Ti alloy, Cr alloy, Zr alloy and Hf alloy; and

said non-magnetic intermediate layer has a hexagonal close-packed crystal structure.

3. (Currently Amended) A The method, according to claim 1, wherein:

said non-magnetic intermediate layer has a thickness of from 0.5 nm to 20 nm.

4. (Currently Amended) ~~A~~ The method, according to claim 1, wherein:

said non-magnetic grain boundary is composed of at least one of an oxide and a nitride of at least one element selected from the group consisting of Mg, Al, Si, Ti, Cr, Mn, Co, Zr, Ta, W and Hf.

5. (Currently Amended) ~~A~~ The method, according to claim 1, wherein:

said under-layer is composed of at least one of chromium and a chromium alloy.

6. (Currently Amended) ~~A~~ The method, according to claim 1, wherein:

said non-magnetic substrate is composed of a material selected from the group consisting of a crystallized glass, a chemically strengthened glass and a plastic.

7. (Currently Amended) ~~A~~ The method, according to claim 1, wherein:

said steps of laminating said non-magnetic under-layer, laminating said non-magnetic intermediate layer, laminating said magnetic layer, said step of laminating said protective layer, and said step of laminating said liquid lubricant layer include omitting heating during the performance of these steps.

8. (Cancelled)

9. (Original) A method for manufacturing a magnetic recording medium, comprising the steps of:

laminating a non-magnetic under-layer on a non-magnetic substrate by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below;

laminating a non-magnetic intermediate layer on said non-magnetic under-layer by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below, said non-magnetic intermediate layer made of at least a metal selected from the group consisting of Ti, Cr, Zr, Hf, Ti alloy, Cr alloy, Zr alloy and Hf alloy; said non-magnetic intermediate layer having a hexagonal close-packed crystal structure, and said non-magnetic intermediate layer having a thickness of from 0.5 nm to 20 nm;

laminating a magnetic layer on said intermediate layer by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below, said magnetic layer comprising at least ferromagnetic grains and grain boundaries surrounding said grains,

laminating a protective layer on said magnetic layer, and

laminating a liquid lubricant layer on said protective layer.

10. (Cancelled)

11. (Currently Amended) A The method, according to claim 1, ~~further comprising the steps of:~~

~~selecting a non-magnetic substrate~~, wherein said non-magnetic intermediate layer made of at least a metal selected from the group consisting of Ti, Cr, Zr, Hf, Ti alloy, Cr alloy, Zr alloy and Hf

alloy; said non-magnetic intermediate layer having a hexagonal close-packed crystal structure, and said non-magnetic intermediate layer having a thickness of from 0.5 nm to 20 nm; and
~~conducting wherein~~ said steps of laminating are conducted without a step of heating.

12. (Cancelled)

13. (Currently Amended) A method for manufacturing a magnetic recording medium, comprising the steps of:

selecting a non-magnetic substrate;
laminating a non-magnetic under-layer on a said non-magnetic substrate by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below;
laminating a non-magnetic intermediate layer on said non-magnetic under-layer by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below, said non-magnetic intermediate layer made of at least a metal selected from the group consisting of Ti, Cr, Zr, Hf, Ti alloy, Cr alloy, Zr alloy and Hf alloy; said non-magnetic intermediate layer having a hexagonal close-packed crystal structure, and said non-magnetic intermediate layer having a thickness of from 0.5 nm to 20 nm;
laminating a magnetic layer on said intermediate layer by sputtering in an atmosphere having a partial pressure of H₂O of 2×10^{-10} Torr or below, said magnetic layer comprising at least ferromagnetic grains and non-magnetic grain boundaries surrounding said grains, said non-magnetic grain boundaries being composed of at least one of an oxide and a nitride of at least one element selected from the group consisting of Mg, Al, Si, Ti, Cr, Mn, Co, Zr, Ta, W and Hf;

laminating a protective layer on said magnetic layer, and
laminating a liquid lubricant layer on said protective layer.

14. (Cancelled)

15. (Currently Amended) A The method, according to claim 1, wherein said non-magnetic intermediate layer being at least one of a metal selected from the group consisting of Ti, Cr, Zr, Hf, Ti alloy, Cr alloy, Zr alloy and Hf alloy;

said non-magnetic intermediate layer having a hexagonal close-packed crystal structure;

said non-magnetic intermediate layer having a thickness of from 0.5 nm to 20 nm;

said non-magnetic grain boundaries being composed of at least one of an oxide and a nitride of at least one element selected from the group consisting of Mg, Al, Si, Ti, Cr, Mn, Co, Zr, Ta, W and Hf; and

omitting heating during said steps of laminating.

16. (Cancelled)

17. (New) The method of claim 1, wherein heating is omitted during and prior to the step of laminating a magnetic layer on said intermediate layer by sputtering in an atmosphere having a partial pressure of H₂O of 2 x 10⁻¹⁰ Torr or below.